

WHAT IS CLAIMED IS:

- 1 1. A method of inspecting a multilayer gas sensing device which comprises a
2 sensor cell including a solid electrolyte plate, a measured gas side electrode
3 placed on a surface of said solid electrolyte plate to be exposed to a measured gas
4 and a reference electrode placed on a surface of said solid electrolyte plate to be
5 exposed to a reference gas, with said measured gas side electrode being coated
6 with a porous diffusion resistance layer in a stacked condition and said diffusion
7 resistance layer being further coated with a dense protective layer in a stacked
8 condition, said method comprising the steps of:
9 immersing said multilayer gas sensing device in a conductive inspection
10 solution;
11 placing said reference electrode into non-contact condition with said
12 conductive inspection solution;
13 applying a voltage between said conductive inspection solution and said
14 reference electrode to measure a current flowing between said conductive
15 inspection solution and said reference electrode; and
16 making a decision as to whether or not insulation is kept between said
17 conductive inspection solution and said reference electrode.
- 1 2. The method according to claim 1, wherein, for applying said voltage
2 between said conductive inspection solution and said reference electrode, said
3 voltage is applied between a reference side external terminal, which is electrically
4 connected to said reference electrode and formed in an exposed state in the
5 exterior of said multilayer gas sensing device and which does not come into
6 contact with said conductive inspection solution, and said conductive inspection
7 solution.

1 3. The method according to claim 1, wherein said voltage to be applied
2 between said conductive inspection solution and said reference electrode is in a
3 range from 250V to 1000V.

1 4. The method according to claim 1, wherein, when a current flowing
2 between said conductive inspection solution and said reference electrode in
3 response to the voltage application therebetween is below 5 μ A, said multilayer
4 gas sensing device is decided to be a non-defective product.

1 5. The method according to claim 1, wherein said conductive inspection
2 solution is an ethanol.